



RECEIVED

GHC11US MAY 25 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

TECH CENTER 1600/2900

In re the Application of) Group Art Unit:
Anthony S. Weiss)
Appln. No.: 09/743,818) Examiner:
Filed: January 16, 2001)
For: PROTEASE SUSCEPTIBILITY II) May 22, 2001

Assistant Commissioner for Patents
Washington, DC 20231

#1
7
KV
8-4-01

INFORMATION DISCLOSURE STATEMENT

Sir:

Applicants submit to the Examiner the attached Form PTO/SB/08A/B document listing and this paper pursuant to 37 CFR §1.56 and § 1.97-1.98. Form PTO/SB/08A/B is attached and copies of the references are enclosed herewith.

Documents (AL) and (CW), which are cited in the attached PCT/SB/08A/B, were previously cited in prior International Application No. PCT/AU99/00580, filed July 19, 1999, of which this application is a 371.

This Information Disclosure Statement is submitted more than three months from the filing date of this application, but prior to receipt of a first Office Action on the merits. Therefore, no fees or declarations are necessary. The Director of the U. S. Patent and Trademark Office is hereby authorized to charge any deficiency in any fees due with the filing of this paper or credit any overpayment in any fees paid on the filing, or during prosecution of this application to Deposit Account No. 08-3040.

CERTIFICATE UNDER 37 CFR §1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: the Assistant Commissioner for Patents, Washington, DC 20231 on May 22, 2001.

Signature Debra N. Gerstemeier

Typed or printed name Debra N. Gerstemeier



Please use a plus sign (+) inside this box → ☐

6-P/1646
RECEIVED
PTO/SB/21 (08-00)
MAY 25 2001

| | | | |
|---|----------------------|------------------------|----------|
| TRANSMITTAL FORM (to be used for all correspondence after initial filing) | Application Number | 09/743,818 | |
| | Filing Date | January 16, 2001 | |
| | First Named Inventor | Anthony S. Weiss | |
| | Group Art Unit | 1646 | |
| | Examiner Name | | |
| Total Number of Pages in this Submission | 16 | Attorney Docket Number | GHC11USA |

ENCLOSURES (check all that apply)

| | | |
|---|--|---|
| <input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Response/Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund | <input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Payment of Issue Fee <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below): |
| Remarks: Copies of sixty-nine (69) documents are attached herewith. | | |

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

| | |
|-------------------------|--|
| Firm or Individual Name | Cathy A. Kodroff, Esquire Howson and Howson |
| Signature | <i>Cathy A. Kodroff</i> |
| Date | 5/22/01 |

CERTIFICATE OF MAILING

| | | | |
|--|-----------------------------|------|-----------|
| I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: <u>May 22, 2001</u> . | | | |
| Typed or printed name | Debra N. Gerstemeier | | |
| Signature | <i>Debra N. Gerstemeier</i> | Date | 5-22-2001 |



RECEIVED
MAY 25 2001

TECH CENTER 1600/2900

REMARKS

Documents (AL) and (CW) were cited in the International Search Report in the corresponding International application as being of particular relevance.

Documents (AR) through (AZ), (BR) through (BU), (CX) through (CZ), (CCR) through (CCZ), (DR) and (DS) are cited in the specification.

U. S. Patent No. 6,232,458 (AA) and International Patent Application No. WO94/14958 (AM) relate to synthetic polynucleotides encoding tropoelastin. U. S. Patent No. 6,232,458 is the corresponding U. S. national phase under 35 USC §371 of International Patent Application No. WO94/14958.

WO99/03886 (AL), which was also published as AU-83252/98-A, relates to derivatives of tropoelastin and variants of those derivatives.

Pierce (AR) reports that multiple cis-acting elements contribute to alternative splicing of rat tropoelastin mRNA.

Bisaccia (AS) reports a study of the conformation and biological properties of the 26A peptide sequence.

Chang (AT) reports a study of the selective cleavage of polypeptide hormones and derivatives thereof by alpha-thrombin.

Grosso (AU) reports a study of the capacity of PGAIPG or GAIPG to interact with the elastin receptor of neutrophils and M27 cells.

Franzblau (AV) reports a model for incorporation of soluble elastin into the elastin fibre in neonatal rat aortic smooth muscle cell.

Hayashi (AW) reports an elastin polypeptide with a molecular mass of 45 kDa.

Kobayashi (AX) reports a study of the capacity of the endothelial barrier to facilitate transfer of a serum factor for inducing production or activation of SMC elastase.

Mecham (AY) reports the capacity of an enzyme present in a tropoelastin preparation to degrade tropoelastin in a specific manner.

Mecham (AZ) describes a neutral serine protease with trypsin-like specificity and inhibitors of the enzyme.

Mecham (AAR) is a review of proteolysis of tropoelastin.

Rich (AAS) describes the isolation of a tropoelastin protein from lathyrus chick aortae and characteristics of the protein.

Romero (AAT) reports the role of plasma and serum proteases in the degradation of elastin, and discloses that serum is the source of protease activity against elastin.

Rucker (AAU) reports the isolation of a 72 kDa tropoelastin protein from chick aortae.

Sandberg (AAV) reports a method for the production of soluble elastin from pigs which have a copper deficient diet.

Torres (AAW) refers to a study on the digestion of tropoelastin with thrombin.

McGowan (AAX) reports a study of the capacity of serine proteinase-mediated proteolytic events to modulate the quantities of soluble elastin in a culture medium.

Hinek (AAY) reports the capacity of elastin binding protein to serve as a protective companion protein for tropoelastin during secretion and extracellular assembly.

Davidson (AAZ) describes immunologic methodologies for measuring elastin synthesis in organ and cell culture.

Mecham (BR) describes the capacity of a 67kDa protein to bind to a elastin.

Foster (BS) is a review of elastin structure, the elastin gene and RNA transcripts and isoforms.

Ewart (BT) describes a study of the effect of a deletion of an elastin allele on phenotype.

Tarlton (BU) describes the profiles of matrix metalloproteinase 2 and 9 in tissue fluids.

Indik (BV) describes the isolation and characterisation of the human elastin gene.

Frangiskakis (BW) describes a genetic mechanism involved in inheritance of Williams syndrome.

Fazio (BX) describes the isolation and characterisation of human elastin cDNA sequences.

Osborne (BY) describes a physical map of the genome in the region containing the elastin gene.

Bashir (BZ) describes the isolation and characterisation of the elastin gene.

Slack (BBR) reports that the analysis of the expression of chimeric hGH constructs in transgenic mice.

Jänne (BBS) is a review of the use of transgenic animals to produce therapeutic proteins.

Merrifield (BBT) reports solid phase peptide synthesis.

Knorr (BBU) reports agents for coupling in peptide chemistry.

Rosenbloom (BBV) is a review of the structure of the elastin gene and cDNA, specifically, the heterogeneity observed in post transcription mRNA.

Rosenbloom (BBW) describes the structure of the elastin gene and its relationship to the structure and function of the elastin protein

Parks (BBX) reviews tropoelastin gene structure, alternative splicing of mRNA, protein heterogeneity and function.

Cappello (BBY) reports the production of homoblock protein polymers consisting exclusively of silk-like crystalline blocks and elastin-like flexible blocks.

Kahari (BBZ) reports the positive and negative cis-acting elements of the human elastin gene.

Parks (CR) reports that all elastogenic cells process tropoelastin pre-mRNA similarly, which means that the observed heterogeneity of tropoelastin is not a region of tissue specific event.

Rosenbloom (CS) is a review of tropoelastin protein and gene structure and the regulation of the tropoelastin gene.

McPherson (CT) reports the preparation of a molecule which has elastomeric properties.

Tassabehji (CU) describes the exon-intron boundaries of the elastin gene and certain point mutations in the gene.

Holzenberger (CV) describes a PCR based assay for assessing recovery of tropoelastin mRNA and extent of alternative splicing of transcripts in cultured skin fibroblasts.

Martin (CW) refers to a synthetic human gene encoding tropoelastin.

Indik (CX) relates to the splicing of elastin messenger RNA.

Indik (CY) relates to splicing of pre-mRNA for tropoelastin and recombinant work relating to tropoelastin. This document also refers to a tropoelastin gene in the nature expressed as multiple transcripts which are distinguished by alternative splicing.

Oliver (CZ) relates to the tropoelastin gene.

Sambrook (CCR) relates to recombinant and synthetic techniques.

Bressan (CCS) refers to the cloning of a defined naturally occurring segment of tropoelastin.

Raju (CCT) relates to cDNA clones for bovine elastin and transcripts therefrom.

Lipman (CCU) relates to algorithms which can be produced in sequence comparison.

Bedell-Hogan (CCV) relates to the enzymatic method of lysyl oxidase mediated oxidation of the tropoelastin towards cross-linking.

Studier (CCW) relates to E. coli B strain derivatives and to the pET3d vector.

Gough (CCX) relates to the NM522 strain of E. coli and to the sequence diversity among related genes recognition of specific targets and DNA molecules.

Bullock (CCY) refers to the E. coli host XLI-Blue script II.

Heim (CCZ) relates to the splicing of rat tropoelastin messenger RNA.

Yeh (DR) relates to sequence variation of bovine elastin messenger RNA due to alternative splicing.

Smith (DS) relates to the glutathione-S-transferase fusion.

Fazio (DT) refers to a naturally occurring tropoelastin coding sequence.

Urry (DU) relates to the temperature dependence of the length of elastin and its polypentapeptide.

Rapaka (DV) relates to cross-linking of lysine and glutamic acid side chains.

Sandberg (DW) relates to purification of tropoelastin.

Murray (DX) relates to codon usage in plant genes.

Zhang (DY) relates to low usage codons in various species including E. coli.

Eyre (DZ) is a review of collagen and elastin and cross-linking abnormalities in disease.

Reiser (DDR) refers to the mechanisms of cross-linking of collagen and elastin.


Sharp (DDS) discloses a codon adaptation index which is a measure of synonymous codon usage bias.

Yoshifuji (DDT) refers to techniques suitable for cross-linking of tropoelastin to form elastin.

The Examiner is respectfully requested to consider the enclosed documents during the course of the examination of this application.

Respectfully submitted,

HOWSON AND HOWSON
Attorneys for the Applicants

By 
Cathy A. Kodroff
Registration No. 33,980
Spring House Corporate Center
Box 457
Spring House, PA 19477
Telephone: (215) 540-9210
Telefacsimile: (215) 540-5818



RECEIVED

MAY 25 2001

PTO/SB/08A (08-00)

TECH CENTER 1600/2900

Please type a plus sign (+) inside this box → ☐

| | | | | | |
|---|---|----|---|--------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 1 | of | 9 | Attorney Docket Number | GHC11USA |

| U.S. PATENT DOCUMENTS | | | | | | |
|-----------------------|-----------------------|----------------------|-----------------------------------|---|--|---|
| Examiner Initials* | Cite No. ¹ | U.S. Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
| | | Number | Kind Code ² (if known) | | | |
| | AA | 6,232,458 | B1 | A. Weiss | 05/15/2001 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| FOREIGN PATENT DOCUMENTS | | | | | | | | |
|--------------------------|-----------------------|-------------------------|---------------------|-----------------------------------|---|--|---|----------------|
| Examiner Initials* | Cite No. ¹ | Foreign Patent Document | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
| | | Office ³ | Number ⁴ | Kind Code ⁵ (if known) | | | | |
| | AL | WO | WO99/03886 | A2 | A. Weiss | 01/28/1999 | | |
| | AM | WO | WO94/14958 | A1 | A. Weiss | 07/07/1994 | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.



RECEIVED

MAY 25 2001

PTO/SB/08B (08-00)

TECH CENTER 1600/2900

Please type a plus sign (+) inside this box → ☐

| | | | | | |
|--|---|----|---|--------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 2 | of | 9 | Attorney Docket Number | GHC11USA |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | | |
|--|-----------------------|---|--|----------------|
| Examiners Initials ¹ | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | T ² |
| | AR | RICHARD PIERCE et al, "Elements of the Rat Tropoelastin Gene Associated with Alternative Splicing", Genomics, 12:651-658 (1992) | | |
| | AS | FAUSTINO BISACCIA et al, "The Amino Acid Sequence Coded by the Rarely Expressed Exon 26A of Human Elastin Contains a Stable β -Turn with Chemotactic Activity for Monocytes", Biochemistry, 37(31):11128-11135 (1998) | | |
| | AT | JUI-YOA CHANG, "Thrombin Specificity - Requirement for Apolar Amino Acids Adjacent to the Thrombin Cleavage Site of Polypeptide Substrate", Eur. J. Biochem., 151:217-224 (1985) | | |
| | AU | LEONARD GROSSO et al, "PGAIPG, a Repeated Hexapeptide of Bovine and Human Tropoelastin, is Chemotactic for Neutrophils and Lewis Lung Carcinoma Cells", Archives of Biochemistry and Biophysics, 305(2):401-404 (September, 1993) | | |
| | AV | CARL FRANZBLAU et al, "Role of Tropoelastin Fragmentation in Elastogenesis in Rat Smooth Muscle Cells", J. Biol. Chem., 264(25):15115-15119 (September 5, 1989) | | |
| | AW | AKINOBU HAYASHI et al, "Presence of Elastin-related 45-kDa Fragment in Culture Medium: Specific Cleavage Product of Tropoelastin in Vascular Smooth Muscle Cell Culture", Biochimica et Biophysica Acta, 1244:325-330 (1995) | | |
| | AX | JUN KOBAYASHI et al, "Serum-Induced Vascular Smooth Muscle Cell Elastolytic Activity Through Tyrosine Kinase Intracellular Signalling", Journal of Cellular Physiology, 160:121-131 (1994) | | |
| | AY | ROBERT MECHAM et al, "Intrinsic Enzyme Activity Associated with Tropoelastin", Biochim. Biophys. Acta., 446:245-254 (1976) | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.



MAY 25 2001

TECH CENTER 1600/2900
PTO/SB/08B (08-00)

Please type plus sign (+) inside this box → ☐

| | | | | | |
|--|---|----|---|--------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 3 | of | 9 | Attorney Docket Number | GHC11USA |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | | |
|---|-----------------------|---|--|----------------|
| Examiners Initials [*] | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | T ² |
| / | AZ | ROBERT MECHAM et al, "Trypsin-like Neutral Protease Associated with Soluble Elastin", Biochemistry, 16(17):3825-3831 (1977) | | |
| / | AAR | ROBERT MECHAM et al, "Proteolysis of Tropoelastin", Adv. Expt. Med. Biol., 79:209-216 (1977) | | |
| / | AAS | CELESTE RICH et al, "Isolation of Tropoelastin a from Lathyrus Chick Aortae", Biochem. J., 217:581-584 (1984) | | |
| / | AAT | NADIA ROMERO et al, "Role of Plasma and Serum Proteases in the Degradation of Elastin", Arch. Biochem. Biophys., 244:161-168 (January, 1986) | | |
| / | AAU | ROBERT RUCKER, "Isolation of Soluble Elastin from Copper-Deficient Chick Aorta", Methods in Enzymology, 82:650-657 (1982) | | |
| / | AAV | L. SANDBERG et al, "Production and Isolation of Soluble Elastin from Copper-Deficient Swine", Methods in Enzymology, 82:657-665 (1982) | | |
| / | AAW | A. TORRES et al, "Isolation and Amino Acid Sequence of Some Thrombin Produced Porcine Tropoelastin Peptides", Adv. Expt. Med. Biol., 79:267-276 (1977) | | |
| / | AAX | STEPHEN MCGOWAN et al, "Serine Proteinase Inhibitors Influence the Stability of Tropoelastin mRNA in Neonatal Rat Lung Fibroblast Cultures", Am. J. Physiol., 270:L376-L385 (1996) | | |
| / | AAY | ALEKSANDER HINEK et al, "67-kD Elastin-Binding Protein is a Protective "Companion" of Extracellular Insoluble Elastin and Intracellular Tropoelastin", J. Cell Biol., 126(2):563-574 (July, 1994) | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.



MAY 25 2001

TECH CENTER 1000/2900

Please type plus sign (+) inside this box → ☐

| | | | | | |
|--|---|----|---|--------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 4 | of | 9 | Attorney Docket Number | GHC11USA |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | | |
|--|-----------------------|---|--|--|
| Examiners Initials ² | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | |
| ✓ | AAZ | JEFFREY DAVIDSON et al, "Regulation of Elastin Synthesis in Organ and Cell Culture", Methods in Enzymology, 144:214-232 (1987) | | |
| ✓ | BR | ROBERT MECHAM et al, "Elastin Binds to a Multifunctional 67-Kilodalton Peripheral Membrane Protein", Biochemistry, 28:3716-3722 (1989) | | |
| ✓ | BS | JUDITH FOSTER et al, "The Regulation of Lung Elastin Synthesis", Am. J. Physio., 259:L13-L23 (1990) | | |
| ✓ | BT | AMANDA EWART et al, "Hemizyosity at the Elastin Locus in a Developmental Disorder, Williams Syndrome", Nature Genetics, 5:11-16 (September, 1993) | | |
| ✓ | BU | J. TARLTON et al, "Postsurgical Wound Progression Monitored by Temporal Changes in the Expression of Matrix Metalloproteinase-9", British Journal of Dermatology, 137:506-516 (1997) | | |
| ✓ | BV | ZENA INDIK et al, "Structure of the 3' Region of the Human Elastin Gene: Great Abundance of ALU Repetitive Sequences and Few Coding Sequences", Connective Tissue Research, 16:197-211 (1987) | | |
| ✓ | BW | J. MICHAEL FRANGISKAKIS et al, "LIM-kinase1 Hemizyosity Implicated in Impaired Visuospatial Constructive Cognition", Cell, 86:59-69 (July 12, 1996) | | |
| ✓ | BX | MICHAEL FAZIO et al, "Isolation and Characterization of Human Elastin cDNAs, and Age-Associated Variation in Elastin Gene Expression in Cultured Skin Fibroblasts", Laboratory Investigation, 58(3):270-277 (1988) | | |
| ✓ | BY | LUCY OSBORNE et al, "Identification of Genes from a 500-kb Region at 7q11.23 That is Commonly Deleted in Williams Syndrome Patients", Genomics, 36:328-336 (1996) | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.



RECEIVED

MAY 25 2001

Please type plus sign (+) inside this box → ☐

| | | | | | |
|--|---|----|---|------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | TECH CENTER 1600/2900 | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 5 | of | 9 | Attorney Docket Number | GHC11USA |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | | |
|--|-----------------------|---|----------------|--|
| Examiners Initials [*] | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² | |
| | BZ | MUHAMMAD BASHIR et al, "Characterization of the Complete Human Elastin Gene", J. Biol. Chem., 264(16):8887-8891 (May 25, 1989) | | |
| | BBR | JAMES SLACK et al, "An Upstream Regulatory Region Mediates High-Level, Tissue-Specific Expression of the Human $\alpha 1$ (I) Collagen Gene in Transgenic Mice", Molecular and Cellular Biology, 11(4):2066-2074 (April, 1991) | | |
| | BBS | JUHANI JÄNNE et al, "Transgenic Animals as Bioproducers of Therapeutic Proteins", Annals of Medicine, 24:273-280 (1992) | | |
| ✓ | BBT | R. MERRIFIELD, "Solid Phase Peptide Synthesis. I. The Synthesis of a Tetrapeptide", J. Am. Chem. Soc., 85:2149-2154 (July 20, 1963) | | |
| | BBU | REINHARD KNORR et al, "New Coupling Reagents in Peptide Chemistry", Tetrahedron Letters, 30(15):1927-1930 (1989) | | |
| ✓ | BBV | JOEL ROSENBLOOM et al, "Regulation of Elastin Gene Expression", Ann. New York Acad. Sci., 624:116-136 (1990) | | |
| | BBW | JOEL ROSENBLOOM et al, "Structure of the Elastin Gene", Ciba Found. Symp., 192:59-80 (1995) | | |
| | BBX | WILLIAM PARKS et al, "Tropoelastin Heterogeneity: Implications for Protein Function and Disease", Am. J. Respir. Cell Mol. Biol., 2:399-406 (1990) | | |
| | BBY | JOSEPH CAPPELLO et al, "Genetic Engineering of Structural Protein Polymers", Biotechnol. Prog., 6:198-202 (1990) | | |
| | BBZ | VELI-MATTI KAHARI et al, "Deletion Analyses of 5'-Flanking Region of the Human Elastin Gene", J. Biol. Chem., 265(16):9485-9490 (June, 1990) | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.



RECEIVED

PTO/SB/08B (08-00)
MAY 25 2001

Please type plus sign (+) inside this box → ☒

| | | | | | |
|--|---|----|---|------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 6 | of | 9 | Attorney Docket Number | GHC11USA |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | | |
|--|-----------------------|---|----------------|--|
| Examiners Initials [*] | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² | |
| | CR | WILLIAM PARKS et al, "Cellular Expresson of Tropoelastin mRNA Splice Variants", Matrix, 12:156-162 (1992) | | |
| | CS | JOEL ROSENBLOOM et al, "Elastin Genes and Regulation of their Expression", in Critical Review in Eukaryotic Gene Expression, CRC Press Inc., 1(3):145-156 (1991) | | |
| | CT | DAVID MCPHERSON et al, "Production and Purification of a Recombinant Elastomeric Polypeptide, G-(VPGVG) ₁₉ -VPGV, from Escherichia coli", Biotechnol. Prog., 8:347-352 (1992) | | |
| | CU | MAYADA TASSABEHJI et al, "Elastin: Genomic Structure and Point Mutations in Patients with Supravalvular Aortic Stenosis", Human Molecular Genetics, 6(7):1029-1036 (1997) | | |
| | CV | MARTIN HOLZENBERGER et al, "Quantitation of Tropoelastin mRNA and Assessment of Alternative Splicing in Human Skin Fibroblasts by Reverse Transcriptase-Polymerase Chain Reaction", PCR Methods and Applications, 3:107-114 (1993) | | |
| | CW | STEPHEN MARTIN et al, "Total Synthesis and Expression in Escherichia coli of a Gene Encoding Human Tropoelastin", Gene, 154:159-166 (1995) | | |
| | CX | ZENA INDIK et al, "Alternative Splicing of Human Elastin mRNA Indicated by Sequence Analysis of Cloned Genomic and Complementary DNA", Proc. Natl. Acad. Sci. USA, 84:5680-5684 (August, 1987) | | |
| | CY | ZENA INDIK et al, "Production of Recombinant Human Tropoelastin: Characterization and Demonstration of Immunologic and Chemotactic Activity", Archives of Biochemistry and Biophysics, 280(1):80-86 (July, 1990) | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.



RECEIVED

MAY 25 2001
PTO/SB/08B (08-00)

Please type a plus sign (+) inside this box → ☐

| | | | | | | |
|--|---|----|---|--------------------------|--|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | | |
| | | | | Application Number | | 09/743,818 |
| | | | | Filing Date | | January 16, 2001 |
| | | | | First Named Inventor | | Anthony S. Weiss |
| | | | | Group Art Unit | | |
| | | | | Examiner Name | | |
| Sheet | 7 | of | 9 | Attorney Docket Number | | GHC11USA |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | | |
|--|-----------------------|---|--|----------------|
| Examiners Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | T ² |
| | CZ | LOUISE OLIVER et al, "The Gene Coding for Tropoelastin is Represented as a Single Copy Sequence in the Haploid Sheep Genome", Collagen Rel. Res., 7:77-89 (1987) | | |
| | CCR | J. SAMBROOK et al, "Molecular Cloning: a Laboratory Manual, 2 nd ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY (1989) | | |
| | CCS | GIORGIO BRESSAN et al, "Repeating Structure of Chick Tropoelastin Revealed by Complementary DNA Cloning", Biochemistry, 26(6):1497-1503 (March, 1987) | | |
| | CCT | KALIANNAN RAJU et al, "Primary Structures of Bovine Elastin a, b, and c Deduced from the Sequences of cDNA Clones", J. Biol. Chem., 262:5755-5762 (1987) | | |
| | CCU | DAVID LIPMAN et al, "Rapid and Sensitive Protein Similarity Searches", Science, 227:1435-1441 (March, 1985) | | |
| | CCV | DEBRA BEDELL-HOGAN et al, "Oxidation, Cross-Linking, and Insolubilization of Recombinant Tropoelastin by Purified Lysyl Oxidase", J. Biol. Chem., 268(14):10345-10350 (May, 1993) | | |
| | CCW | F. WILLIAM STUDIER et al, "Use of T7 RNA Polymerase to Direct Expression of Cloned Genes", Methods Enzymol., 185:60-89 (1990) | | |
| | CCX | JILL GOUGH et al, "Sequence Diversity Among Related Genes for Recognition of Specific Targets in DNA Molecules", J. Mol. Biol., 166:1-19 (1983) | | |
| | CCY | W. BULLOCK et al, "XL1-Blue: A High Efficiency Plasmid Transforming recA Escherichia coli Strain with Beta-Galactosidase Selection", BioTechniques, 5(4):376-378 (1987) | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.



RECEIVED

MAY 25 2001

PTO/SB/08B (08-00)

TECH CENTER 1600/2900

Please type plus sign (+) inside this box → ☐

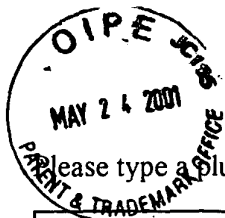
| | | | | | |
|--|---|----|---|------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 8 | of | 9 | Attorney Docket Number | GHC11USA |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | | |
|--|-----------------------|---|----------------|--|
| Examiners Initials ¹ | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² | |
| | CCZ | RUTH HEIM et al, "Alternative Splicing of Rat Tropoelastin mRNA is Tissue-Specific and Developmentally Regulated", Matrix, 11:359-366 (1991) | | |
| | DR | HELENA YEH et al, "Sequence Variation of Bovine Elastin mRNA due to Alternative Splicing", Collagen Rel. Res., 7:235-247 (1987) | | |
| | DS | DONALD SMITH et al, "Single-Step Purification of Polypeptides Expressed in Escherichia coli as Fusions with Glutathione S-transferase", Gene, 67:31-40 (1988) | | |
| | DT | MICHAEL FAZIO et al, "Cloning of Full-length Elastin cDNAs from a Human Skin Fibroblast Recombinant cDNA Library: Further Elucidation of Alternative Splicing Utilizing Exon-specific Oligonucleotides", J. Invest. Dermatol., 91:458-464 (1988) | | |
| | DU | DAN URRY et al, "Temperature Dependence of Length of Elastin and its Polypentapeptide", Biochemical and Biophysical Research Communications, 141(2):749-755 (December, 1986) | | |
| | DV | RAO RAPAKA et al, "Synthesis of Polypeptide Models of Elastin, Synthesis and Properties of a Cross-linked Polytetrapeptide", Int. J. Peptide Protein Res., 21:352-363 (1983) | | |
| | DW | L. SANDBERG et al, "Tropoelastin Purification from Copper-Deficient Swine: a Simplified Method", Biochim. Biophys. Acta., 236:542-545 (1971) | | |
| | DX | ELIZABETH MURRAY et al, "Codon Usage in Plant Genes", Nucl. Acids Res., 17(2):477-498 (1989) | | |
| | DY | SHIPING ZHANG et al, "Low-Usage Codons in Escherichia coli, yeast, fruit fly and primates", Gene, 105:61-72 (1991) | | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.



Please type a plus sign (+) inside this box → ☐

PTO/SB/08B (08-00)

| | | | | | |
|--|---|----|---|--------------------------|------------------|
| Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | | | Complete if Known | |
| | | | | Application Number | 09/743,818 |
| | | | | Filing Date | January 16, 2001 |
| | | | | First Named Inventor | Anthony S. Weiss |
| | | | | Group Art Unit | |
| | | | | Examiner Name | |
| Sheet | 9 | of | 9 | Attorney Docket Number | GHC11USA |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | |
|--|-----------------------|---|----------------|
| Examiners Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
| | DZ | DAVID EYRE et al, "Cross-Linking in Collagen and Elastin", Ann. Rev. Biochem., 53:717-748 (1984) | |
| | DDR | KAREN REISER et al, "Enzymatic and Nonenzymatic Cross-Linking of Collagen and Elastin", FASEB J., 6:2439-2449 (1992) | |
| | DDS | PAUL SHARP et al, "Potential Applications", Nucl. Acids Res., 15:1281-1295 (1987) | |
| | DDT | SHIGEYUKI YOSHIFUJI et al, "Chemical Conversion of L- α , ω -Diamino Acids to L- ω -Carbamoyl- α -amino Acids by Ruthenium Tetroxide Oxidation", Chem. Pharm. Bull., 35:2994-3000 (1987) | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|-----------------------|--|--------------------|--|
| Examiner Signature | | Date Considered | |
|-----------------------|--|--------------------|--|

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.